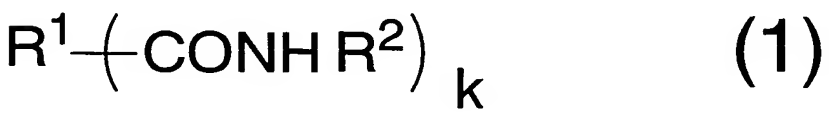
CLAIMS

1. A composition for controlling the crystallization rate of a polyolefin-based resin, the composition comprising:

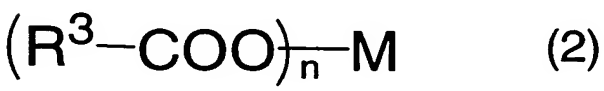
(A) at least one amide-based compound represented by General Formula (1)



(1)

wherein R^1 represents a residue obtained by removing all the carboxyl groups of 1,2,3-propanetricarboxylic acid or 1,2,3,4-butanetetracarboxylic acid, k represents an integer of 3 or 4, and the three or four R^2 groups are the same or different, and each represent cyclohexyl or cyclohexyl substituted with one C_{1-10} linear or branched alkyl; and

(B) at least one fatty acid metal salt represented by General Formula (2)



(2)

wherein R^3 represents a residue obtained by removing the carboxyl group from a C_{8-32} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule, n represents an integer of 1 or 2, when n is 2, the two R^3 groups may be the same or different, and M represents a monovalent or divalent metal,

the component (A) : component (B) weight ratio being from 100:0 to 30:70.

2. The composition according to Claim 1, wherein the component (A) : component (B) weight ratio is from 95:5 to 30:70.

3. The composition according to Claim 1, wherein the three or four R^2 groups in General Formula (1) are the same or different and each represent cyclohexyl or cyclohexyl substituted with C_{1-4} linear or branched alkyl.

4. The composition according to Claim 1, wherein the three or four R^2 groups in General Formula (1) are the same or different and each represent cyclohexyl or 2-methyl-, 3-methyl- or 4-methyl-substituted cyclohexyl.

5. The composition according to Claim 1, wherein R^1 in General Formula (1) represents a residue obtained by removing all of the carboxyl groups from 1,2,3-propanetricarboxylic acid, and k is 3.

6. The composition according to Claim 1, wherein M in General Formula (2) is at least one metal selected from the group consisting of alkali metals, alkaline earth metals and zinc.

7. The composition according Claim 1, wherein R^3 in General Formula (2) is a residue obtained by removing the carboxyl group from a C_{10-18} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule.

8. The composition according to Claim 7, wherein the aliphatic monocarboxylic acid is at least one member selected from the group consisting of lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, and 12-hydroxystearic acid.

9. A method for controlling the crystallization rate of a polyolefin-based resin during molding of the polyolefin-based resin, the method comprising

incorporating into the polyolefin-based resin a polyolefin-based resin crystallization rate-controlling composition comprising:

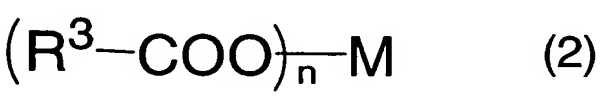
(A) at least one amide-based compound represented by General Formula (1)

$$R^1\text{-}(\text{-}CONH\,R^2)_k \qquad (1)$$

wherein R^1 represents a residue obtained by removing all of the carboxyl groups from 1,2,3-propanetricarboxylic acid or 1,2,3,4-butanetetracarboxylic acid, k represents an integer of 3 or 4, and the three or four R^2 groups are the same or different

and each represent cyclohexyl or cyclohexyl substituted with one C_{1-10} linear or branched alkyl, and

(B) at least one fatty acid metal salt represented by General Formula (2)



$$(R^3-COO)_n-M \qquad (2)$$

wherein R^3 represents a residue obtained by removing the carboxyl group from a C_{8-32} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule, n represents an integer of 1 or 2, when n is 2, the two R^3 groups may be the same or different, and M represents a monovalent or divalent metal, the weight ratio of component (A):component (B) being from 100:0 to 30:70, or

incorporating component (A) and component (B), simultaneously or separately, into the polyolefin-based resin such that the weight ratio of component (A) : component(B) is from 100:0 to 30:70

to thereby give a polyolefin-based resin composition, and

molding the resin composition.

10. The method according to Claim 9, wherein the weight ratio of component (A) : component (B) is from 95:5 to 30:70.

11. The method according to Claim 9, wherein the resin composition is molded at a resin temperature higher than the transition temperature of storage modulus during heating.

12. The method according to Claim 9, wherein the resin composition is molded at a resin temperature not lower than the melting temperature of the polyolefin-based resin and not higher than the transition temperature of storage modulus during heating.

13. Use of a composition for controlling the crystallization rate of a polyolefin-based resin during molding of the polyolefin-based resin, the composition comprising:

(A) at least one amide-based compound represented by General Formula (1)

$$R^1\text{-}(\text{-}CONH\,R^2)_k \qquad (1)$$

wherein R^1 represents a residue obtained by removing all of the carboxyl groups from 1,2,3-propanetricarboxylic acid or 1,2,3,4-butanetetracarboxylic acid, k represents an integer of 3 or 4, the three or four R^2 groups are the same or different and each represent cyclohexyl or cyclohexyl substituted with one C_{1-10} linear or branched alkyl, and

(B) at least one fatty acid metal salt represented by General

Formula (2)

$$(R^3-COO)_n-M \qquad (2)$$

wherein R^3 represents a residue obtained by removing the carboxyl group from a C_{8-32} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule, n represents an integer of 1 or 2, when n is 2, the two R^3 groups may be the same or different and M represents a monovalent or divalent metal,

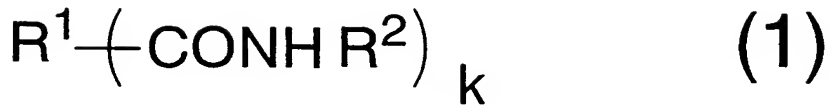
the weight ratio of component (A) : component (B) being from 100 : 0 to 30 : 70.

14. The use according to Claim 13 wherein the weight ratio of component (A): component (B) is in the range from 95:5 to 30:70.

15. A process for producing a polyolefin-based resin molded product, the process comprising

incorporating into a polyolefin-based resin a polyolefin-based resin crystallization rate-controlling composition comprising:

(A) at least one amide-based compound represented by General Formula (1)



(1)

wherein R^1 represents a residue obtained by removing all of the carboxyl groups from 1,2,3-propanetricarboxylic acid or 1,2,3,4-butanetetracarboxylic acid, k represents an integer of 3 or 4, and the three or four R^2 groups are the same or different and each represent cyclohexyl or cyclohexyl substituted with one C_{1-10} linear or branched alkyl, and

(B) at least one fatty acid metal salt represented by General Formula (2)

(2)

wherein R^3 represents a residue obtained by removing the carboxyl group from a C_{8-32} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule, n represents an integer of 1 or 2, when n is 2, the two R^3 groups may be the same or different, and M represents a monovalent or divalent metal, the weight ratio of component (A):component (B) being from 100:0 to 30:70, or

incorporating component (A) and component (B), simultaneously or separately, into a polyolefin-based resin such that the weight ratio of component (A) : component(B) is from 100:0 to 30:70

to thereby give a polyolefin-based resin composition,

and

molding the resin composition.

16. The process according to Claim 15, wherein the weight ratio of component (A) : component (B) is from 95:5 to 30:70.

17. The process according to Claim 15, wherein the resin composition is molded at a resin temperature higher than the transition temperature of storage modulus during heating.

18. The process according to Claim 15, wherein the resin composition is molded at a resin temperature not lower than the melting temperature of the polyolefin-based resin and not higher than the transition temperature of storage modulus during heating.

19. A process according to Claim 18, comprising the step of molding a molten polyolefin-based resin composition comprising a network structure formed of fibrous particles of an amide-based compound represented by the formula (1-p)

$$R^{1P}\left(CONH\,R^{2P}\right)_3 \quad (1\text{-}p)$$

wherein R^{1P} represents a residue obtained by removing all of

the carboxyl groups from 1,2,3-propanetricarboxylic acid, and the three R^{2P} groups are the same or different and each represent cyclohexyl or cyclohexyl substituted with one C_{1-4} linear or branched alkyl, under temperature conditions such that the fibrous particles constituting the network structure do not dissolve or melt.

20. A process according to Claim 19 comprising the steps of (a) dissolving said at least one amide-based compound represented by the formula (1-p) in a molten polyolefin-based resin to prepare a molten mixture,
(b) cooling the molten mixture to a temperature not higher than the transition temperature of storage modulus during cooling to obtain a polyolefin-based resin composition containing a network structure formed of fibrous particles of said at least one amide-based compound represented by the formula (1-p), and
(c) molding the polyolefin-based resin composition at a resin temperature not lower than the melting temperature of the polyolefin-based resin and not higher than the transition temperature of storage modulus during heating.

21. The process according to Claim 20, wherein said polyolefin-based resin composition is in the form of pellets.

22. The process according to Claim 19, wherein said

polyolefin-based resin composition further contains at least one fatty acid metal salt represented by the formula (2)

$$(R^3\text{—}COO)_nM \quad (2)$$

wherein R^3 represents a residue obtained by removing the carboxyl group from a C_{8-32} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule, n represents an integer of 1 or 2, when n is 2, the two R^3 groups may be the same or different, and M represents a monovalent or divalent metal.

23. The process according to Claim 19, wherein the polyolefin-based resin composition containing the network structure formed of said fibrous particles is molded by a molding method comprising an injection step or an extrusion step.

24. The process according to Claim 23, wherein said molding method comprising an injection step or an extrusion step is injection molding, extrusion molding, injection-blow molding, injection-extrusion blow molding, injection-compression molding, extrusion-blow molding, extrusion-thermoforming or melt-spinning.

25. The process according to Claim 15, wherein said polyolefin-based resin is at least one member selected from

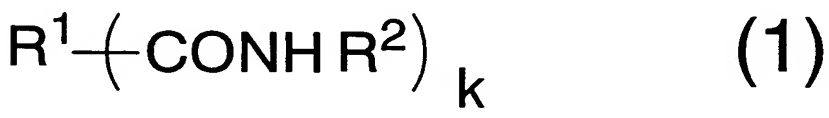
the group consisting of propylene homopolymers and propylene copolymers.

26. A polyolefin-based resin molded product prepared by the process of Claim 18 and having an orientation degree represented by the ratio of the (040) reflection intensity to the (110) reflection intensity determined by wide angle X-ray diffractometry of at least 2.

27. A polyolefin-based resin molded product comprising:

a polyolefin-based resin,

(A) at least one amide-based compound represented by General Formula (1)



(1)

wherein R^1 represents a residue obtained by removing all of the carboxyl groups from 1,2,3-propanetricarboxylic acid or 1,2,3,4-butanetetracarboxylic acid, k represents an integer of 3 or 4, and the three or four R^2 groups are the same or different and each represent cyclohexyl or cyclohexyl substituted with one C_{1-10} linear or branched alkyl, and

(B) at least one fatty acid metal salt represented by General Formula (2)

$$(R^3-COO)_n-M \qquad (2)$$

wherein R^3 represents a residue obtained by removing the carboxyl group from a C_{8-32} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule, n represents an integer of 1 or 2, when n is 2, the two R^2 groups may be the same or different and M represents a monovalent or divalent metal,

the weight ratio of component (A) : component (B) being from 100 : 0 to 30 : 70,

the molded product having an orientation degree represented by the ratio of the (040) reflection intensity to the (110) reflection intensity determined by wide angle X-ray diffractometry of at least 2.

28. A polyolefin-based resin molded product comprising:

a polyolefin-based resin, and

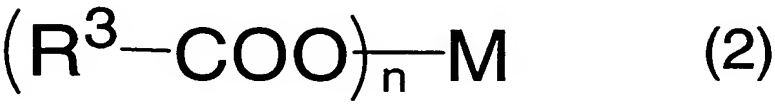
(a) at least one amide-based compound represented by the formula (1-p)

$$R^{1P}-(CONH\,R^{2P})_3 \qquad (1\text{-}p)$$

wherein R^{1P} represents a residue obtained by removing all of the carboxyl groups from 1,2,3-propanetricarboxylic acid, and

the three R^{2P} groups are the same or different and each represent cyclohexyl or cyclohexyl substituted with one C_{1-4} linear or branched alkyl, or

(b) said at least one amide-based compound represented by General Formula (1-p) and at least one fatty acid metal salt represented by General Formula (2)



$$(R^3-COO)_n-M \qquad (2)$$

wherein R^3 represents a residue obtained by removing the carboxyl group from a C_{8-32} saturated or unsaturated aliphatic monocarboxylic acid which may have at least one hydroxyl group per molecule, n represents an integer of 1 or 2, when n is 2, the two R^3 groups may be the same or different and M represents a monovalent or divalent metal,

the molded product having an orientation degree represented by the ratio of the (040) reflection intensity to the (110) reflection intensity determined by wide angle X-ray diffractometry of at least 2.

29. A polyolefin-based resin composition comprising a polyolefin-based resin and a crystallization rate-controlling composition of Claim 1.

30. The polyolefin-based resin composition according to Claim

29 comprising the crystallization rate-controlling composition in an amount of 0.01 to 10 parts by weight per 100 parts by weight of the polyolefin-based resin.

31. A polyolefin-based resin molded product obtainable by molding the polyolefin-based resin composition of Claim 29.